PATENT COOPERATION TREATY

PCT

TRANSLATION INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference KG240PCT			ence	FOR FURTHER AC	CTION	See Form PCT/IPEA/416		
International application No.				International filing date	(day/month/year)	Priority date (day/month/year)		
PCT/JP2004/016981			6981	16.11.2004	Į.	17.11.2003		
Internati	onal Pat	ent Classificat	ion (IPC) or nati	onal classification and II	PC PC			
C03	C03C10/00, B82B1/00, C03B8/02, H01M4/02, 4/48, 10/40							
Applicant NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY								
1.	1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.							
2.	This R	EPORT consis	sts of a total of	5	sheets, including	g this cover sheet.		
3.	This re	port is also ac	companied by A	NNEXES, comprising:				
	a. 🔀	(sent to th	ne applicant and	to the International Bure	eau) a total of 5	sheets, as follows:		
	sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).							
	sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental							
	, г	Box		D 1 1 1 6 C				
	b. <u></u>	(sent to th	ie International i	Bureau only) a total of (i	ndicate type and number	r of electronic carrier(s))		
		valoted then	ata in computar	randable form only as		_ , containing a sequence listing and/or tables mental Box Relating to Sequence Listing (see		
				rative Instructions).	marcated in the Supplet	inclinal Box Relating to Sequence Listing (see		
4.	This re	port contains i	ndications relati	ng to the following items	s:			
		Box No. I	Basis of the	report				
	Ш	Box No. II	Priority					
		Box No. III	Non-establi	shment of opinion with regard to novelty, inventive step and industrial applicability				
		Box No. IV	Lack of unit	y of invention				
	\boxtimes	Box No. V		atement under Article 35 d explanations supporting	•	ty, inventive step or industrial applicability;		
		Box No. VI	Certain doc	uments cited	nents cited			
		Box No. VII	Certain defe	ects in the international a	pplication			
		Box No. VIII	Certain obs	ervations on the internati	onal application			
		Date of completion of thi	s report					
						•		
Name and mailing address of the IPEA/JP			he IPEA/JP	I I	Authorized officer			
Facsimile No.			1	Telephone No.				

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/016981

Box	No. I	I Basis of the report		
1.		th regard to the language, this report is based on the internation icated under this item.	al application in the language in w	hich it was filed, unless otherwise
		This report is based on translations from the original language which is the language of a translation furnished for the purposition international search (Rule 12.3 and 23.1(b)) publication of the international application (Rule 12.4) international preliminary examination (Rule 55.2 and/or	oses of:	,
2.	rece	th regard to the elements of the international application, this reviving Office in response to an invitation under Article 14 are report): the international application as originally filed/furnished the description:	referred to in this report as "ori	ginally filed" and are not annexed to
		pages 1,2,4-15		as originally filed/furnished
		pages* 3		
		pages*	received by this Authority on _	
	\boxtimes	the claims:		
		nos. 3,4,9-18,20-24		as originally filed/furnished
		nos.*	<u> </u>	•
		nos.* 1,2,5-8,19		
		nos.*	received by this Authority on	
	\boxtimes	the drawings:		
		sheets 1–13		as originally filed/furnished
		sheets*	received by this Authority on _	
		sheets*	received by this Authority on _	
		a sequence listing and/or any related table(s) - see Suppleme	ntal Box Relating to Sequence Lis	sting.
3.	\boxtimes	The amendments have resulted in the cancellation of:		
		the description, pages		
		the claims, nos25		
		the drawings, sheets/figs		
		the sequence listing (specify):		
4.		This report has been established as if (some of) the amendathey have been considered to go beyond the disclosure as file	ments annexed to this report and l	isted below had not been made, since
		the description, pages		
		the claims, nos.		
		the drawings, sheets/figs		
		the sequence listing (specify):		
		any table(s) related to sequence listing (specify):		
*	If ite	em 4 applies, some or all of those sheets may be marked "supe	rseded."	

International application No.				
PCT/JP2004/016981				

Box	No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	
1.	Statement	
	Novelty (N) Claims 1-24	YES
	Claims	
	Inventive step (IS) Claims 1-24	YES
	Claims	
	Industrial applicability (IA) Claims 1-24	VEC
	Claims	
2.	Citations and explanations (Rule 70.7)	
	Document 1: WO 1996/039357 A1 (Michigan State	
	University), 12 December 1996	
	Document 2: JP 2002-042808 A (Canon Inc.), 08 February	
	2002	
	Document 3: JP 2004-214116 A (National Institute of	
	Advanced Industrial Science and Technology),	
	29 July 2004	
	Document 4: JP 2003-077541 A (Mitsubishi Heavy	
	Industries, Ltd.), 14 March 2003	
	Document 5: JP 2003-077466 A (Mitsubishi Heavy	
	Industries, Ltd.), 14 March 2003	
	Claims 1 to 10	
	Claims 1 to 10 are novel and involve an inventive	
	step.	
	The inventions set forth in claims 1 to 10 are not	
	disclosed in any of the documents that are cited in the	
	international search report; therefore, the inventions in	
	question are novel and involve an inventive step. In	
	particular, the abovementioned documents do not disclose	

the feature wherein P_2O_5 is included in the glass phase of a mesoporous composite material that comprises oxide

nanocrystals and glass. On the other hand, the inventions

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

set forth in the present application exhibit an advantageous effect in that it is possible to obtain an oxide nanocrystal/glass-based mesoporous composite material with a framework that includes uniformly-sized nanocrystals with particle sizes on the order of 3 to 5 nm as a result of the feature in question.

Claims 11 to 24

Claims 11 to 24 are novel and involve an inventive step.

The inventions set forth in claims 11 to 24 are not disclosed in any of the documents that are cited in the international search report; therefore, the inventions in question are novel and involve an inventive step. In particular, the abovementioned documents do not disclose the feature wherein the mesoporous composite material that comprises oxide nanocrystals and glass is used in the electrodes of a secondary battery. On the other hand, the inventions set forth in the present application exhibit an advantageous effect in that the resulting secondary battery has both an ion conducting path and an electron conducting path as a result of the feature in question.

Meanwhile, document 1 discloses a feature wherein a partially crystalline mesoporous material, which has mesopores that are arranged in a regular pattern, is used in an adsorption/separation process or in a catalyst (in particular, refer to page 1, line 24 to page 2, line 6).

Document 2 discloses a lithium ion secondary battery wherein a mesoporous material that comprises a tin oxide is used in the negative electrode material (in

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

particular, refer to the claims).

Document 3 discloses a secondary battery wherein a mesoporous material that comprises a noble metal and/or a transition metal is used in the electrodes (in particular, refer to the claims).

Document 4 discloses a lithium ion secondary battery wherein a mesoporous material that comprises an amorphous oxide is used in the positive electrode material (in particular, refer to the claims).

Document 5 discloses a lithium ion secondary battery and a lithium ion capacitor wherein a mesoporous material that comprises an amorphous manganese compound is used in the electrodes (in particular, refer to the claims).